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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MOHSEN SARRAF and
MOHAMMAD HOSSEIN ZARRABIZADEH

Appeal 2009-006598
Application 10/636,161¹
Technology Center 2400

Before KENNETH W. HAIRSTON, JOHN C. MARTIN, and MARC S.
HOFF, *Administrative Patent Judges*.

HOFF, *Administrative Patent Judge*.

DECISION ON APPEAL²

¹ The real party in interest is Lucent Technologies Inc.

² The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, or filing a request for rehearing, as recited in 37 C.F.R. § 41.52, begins to run from the “MAIL DATE” (paper delivery mode) or the “NOTIFICATION DATE” (electronic delivery mode) shown on the PTOL-90A cover letter attached to this decision.

STATEMENT OF CASE

Appellants appeal under 35 U.S.C. § 134(a) from a Final Rejection of claims 1-5, 7-14, and 16-18.³ We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

Appellants' invention concerns a hybrid in-band on-channel (HIBOC) digital audio broadcasting (DAB) system. A plurality of audio streams are divided into four digital sub-streams. Each sub-stream is assigned a unique frequency band and a unique time slot relative to the other sub-streams (Spec. 2). A first core sub-stream is mapped to one frequency partition and a second core sub-stream is mapped to another frequency partition and delayed relative to the first core sub-stream. Two enhancement sub-streams are mapped to different frequency partitions and are time delayed relative to each other and to the core sub-streams (*Id.*).

Claims 1 and 10 are exemplary of the claims on appeal:

1. A method of transmitting a plurality of sub-streams in a multi-stream digital audio broadcasting system, said method comprising the steps of:
 - allocating a unique frequency partition to each of said sub-streams for a plurality of consecutive time slots;
 - allocating a unique time slot to each of said plurality of sub-streams;
 - and
 - transmitting said sub-streams to a receiver.
10. A transmitter in a multi-stream digital audio broadcasting system, comprising:
 - a modulator for allocating a unique frequency partition to each of two or more sub-streams for a plurality of consecutive time slots;
 - a delay circuit for allocating a unique time slot to each of said two or more sub-streams; and

³ Claims 6 and 15 stand objected to as being dependent on a rejected base claim, but were indicated as allowable if rewritten in independent form.

a transmitter for transmitting said two or more sub-streams to a receiver.

The Examiner relies upon the following prior art in rejecting the claims on appeal:

Sinha US 6,292,917 B1 Sep. 18, 2001

Claims 1-5, 7-14, and 16-18 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Sinha.

Throughout this decision, we make reference to the Appeal Brief (“App. Br.,” filed March 13, 2008), the Reply Brief (“Reply Br.,” filed July 18, 2008) and the Examiner’s Answer (“Ans.,” mailed July 7, 2008) for their respective details.

ISSUE

Appellants argue, *inter alia*, that Sinha does not teach allocating a unique frequency partition to each of the sub-streams for a plurality of consecutive time slots and allocating a unique time slot to each of the plurality of sub-streams (App. Br. 3).

Appellants’ contentions present us with the following issue:

Does Sinha teach a method of transmitting a plurality of sub-streams in a multi-stream digital audio broadcasting system, including allocating a unique frequency partition to each of said sub-streams for a plurality of consecutive time slots and allocating a unique time slot to each of said plurality of sub-streams?

FINDINGS OF FACT

The following Findings of Fact (FF) are shown by a preponderance of the evidence.

Sinha

1. Sinha discloses that “[a]lthough illustrated at least in part using frequency bands as channels, the invention may also be applied to many other types of channels, such as, for example, time slots, code division multiple access (CDMA) slots, and virtual connections in asynchronous transfer mode (ATM) or other packet-based transmission systems” (col. 4, ll. 2-7).

PRINCIPLES OF LAW

“A rejection for anticipation under section 102 requires that each and every limitation of the claimed invention be disclosed in a single prior art reference.” *See In re Buszard*, 504 F.3d 1364, 1366 (Fed. Cir. 2007) (quoting *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994)).

ANALYSIS

Claims 1 and 10 are the independent claims pending in this appeal. Claim 1 recites a method of transmitting a plurality of sub-streams in a multi-stream digital audio broadcasting system, including “allocating a unique frequency partition to each of said sub-streams for a plurality of consecutive time slots,” and “allocating a unique time slot to each of said plurality of sub-streams.” Claim 10 is directed to a transmitter in a multi-stream digital audio broadcasting system, comprising “a modulator for allocating a unique frequency partition to each of two or more sub-streams

for a plurality of consecutive time slots” and “a delay circuit for allocating a unique time slot” to each of the sub-streams. Figure 4 is illustrative of the claimed concepts:

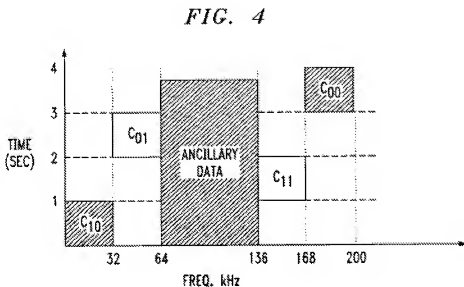


Figure 4 illustrates the time and frequency diversity of the core and enhancement sub-streams of an audio signal, in accordance with the present invention.

We agree with Appellants’ argument, summarized *supra*, that Sinha does not teach both allocating a unique frequency partition to each sub-stream *and* allocating a unique time slot to each sub-stream, as the independent claims require.

The Examiner finds that Sinha teaches allocating unique time slots (Ans. 6, 12). Sinha discloses that “[a]lthough illustrated at least in part using frequency bands as channels, the invention may also be applied to many other types of channels, such as, for example, time slots, code division multiple access (CDMA) slots, and virtual connections in asynchronous transfer mode (ATM) or other packet-based transmission systems” (FF 1).

While we agree with the Examiner that Sinha teaches broadcasting separate channels in different frequency bands *or* different time slots, Sinha contains no teaching of a multi-stream transmission system that exhibits *both* time *and* frequency diversity, as Appellants disclose and claim.

Appellants' arguments have persuaded us that Sinha fails to teach all the features of independent claims 1 and 10. Appellants have thus established that the Examiner erred in rejecting claims 1-5, 7-14, and 16-18 under §102(e) as being anticipated by Sinha, and we will not sustain the rejections.

CONCLUSION

Sinha does not teach a method of transmitting a plurality of sub-streams in a multi-stream digital audio broadcasting system, including allocating a unique frequency partition to each of said sub-streams for a plurality of consecutive time slots and allocating a unique time slot to each of said plurality of sub-streams.

ORDER

The Examiner's rejection of claims 1-5, 7-14, and 16-18 is reversed.

REVERSED

ELD

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